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EXAMINER

TRAN, KHAI

ART UNIT PAPER NUMBER

2631

DATE MAILED: 03/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/670,490

Applicant(s)

SUN, TING

Examiner

KHAI TRAN

Art Unit

2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 12-14 and 16-22 is/are rejected.
- 7) ☒ Claim(s) 11 and 15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 1 is objected to because of the following informalities: Appropriate correction is required.

Regarding claim 1, line 3, the term "the magnitude" should be --the amplitude--.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-10, 12-14, 16-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nabicht et al (U.S. Pat. 6,621,346).

Regarding claim 1, Nabicht et al disclose a method for adaptively adjusting DSL modem receiver in response to a high amplitude downstream DSL signal, comprising step of: determining whether the amplitude of the downstream DSL signal is above a predetermined threshold (col. 1, lines 19-40, a programmable gain amplifiers are particularly useful in the amplification of input signals that may be received over a wide dynamic range). Nabicht et al does not explicitly disclose the downstream DSL signal being above a predetermined threshold. However; Nabicht et al disclose in col. 1, lines 28-40 that many communication systems are operable according to multiple standards

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or protocols, such that the specified range and characteristics of the input signals may vary widely among the standards; in such systems, it is useful to have a programmable gain amplifier for receiving and amplifying the input signals, such that the gain of the amplifier may be programmably adjusted according to the desired standards.

Therefore, it would have been obvious to one having ordinary skill in the art at the time invention was made to determine whether the amplitude of the downstream DSL signal is above a predetermined threshold (the desired standard) in order to enable the programmable gain amplifier to adjust the gain of the DSL modem receiver for reducing error signals.

Nabicht et al also disclose a step of decreasing an amount of gain of the DSL modem receiver if the amplitude of the downstream DSL is above the predetermined threshold to prevent the receiver from being saturated by the downstream DSL (signal col. 1, lines 19-40, the programmability of the gain of the amplifier permits adjustment of the amplifier operating characteristics according to the amplitude of the input signals being received thereby over time).

Regarding claim 2, Nabicht et al also disclose wherein the step of decreasing further comprises switching in additional resistance in a receiver amplifier to decrease the gain of the receiver (the programmable gain amplifier including resistors RA, RB, RC, and switches G1, G2).

Regarding claim 3, Nabicht et al further disclose the step of determining being performed by a digital signal processor (a programmable gain amplifier and a digital

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transceiver function 10 is preferably implement as a high-performance digital signal processor (DSP), col. 5, line 60 to col. 6, line 3)).

Regarding claim 4, Nabicht et al further disclose the step of initially setting the gain of a first stage receiver at a default gain (a desired standard, col. 1, lines 19-40).

Regarding claim 5, Nabicht et al fail to explicit disclose the step of decreasing further comprising the receiver gain by 3dB to 12dB (col. 8, lines 43-53). Nabicht et al disclose that the programmable gain amplifier amplifies the incoming signal according to one of several finely-adjustable levels, for example from 0dB to 3dB in 1dB steps. Therefore, the step of decreasing gain by 3dB to 12dB in order to receive an optimal signal or a desired standard.

Claim 6 is similar to claim 1, Nabicht et al further disclose a method of adaptively adjusting the DSL modem having the receiver as addressed above further including the programmable gain amplifier (20 of Fig. 1, or 25 of Fig. 2 and 54C of Fig. 3) for performing steps of adjusting the DSL modem.

Claims 7-9 are similar to claims 2-3, and 5. Therefore, claims 7-9 are rejected under a similar rationale.

Claim 10 is similar to claim 1, furthermore, Nabicht et al further disclose the step of detecting the amplitude of the downstream DSL signal being performed by a digital signal processor (a programmable gain amplifier and a digital transceiver function 10 is preferably implement as a high-performance digital signal processor (DSP), col. 5, line 60 to col. 6, line 3)).

Regarding claim 12, Nabicht et al also disclose an analog front end (AFE) (12) including a hybrid (16) and a receiver filter (an analog low pass filter 58C and digital filters (64C).

Regarding claim 13, Nabicht et al fail to disclose a loss circuit coupled to and controlled by the data processor for attenuating the downstream signal in response to the data processor detecting a high amplitude downstream DSL signal. However; Nabicht et al disclose the step of detecting the amplitude of the downstream DSL signal being performed by a digital signal processor (a programmable gain amplifier and a digital transceiver function 10 is preferably implement as a high-performance digital signal processor (DSP), col. 5, line 60 to col. 6, line 3)). Therefore, the function of programmable gain amplifier is similar to the function of the loss circuit, claim 13 is therefore rejected under a similar rationale.

Regarding claim 14, Nabicht et al disclose the loss circuit being disposed within the first stage receiver to selectively attenuate the downstream DSL signal before the amplifier circuit amplifies the downstream DSL signal (col. 9, line 31 to col. 10, line 60, such that if switch S23 is closed and switches S3X, S12 are open ...).

Claim 16 is similar to claims 10 and 12. Therefore, claim 16 is rejected under a similar rationale.

Regarding claim 17, Nabicht et al disclose the first stage receiver having an adjustable gain (the programmable gain amplifier 20 of Fig. 1, or 25 of Fig. 2 and 54C of Fig. 3).

Regarding claim 18, Nabicht et al fail to disclose a loss circuit coupled to and controlled by the data processor for attenuating the downstream signal in response to the data processor detecting a high amplitude downstream DSL signal. However; Nabicht et al disclose the step of detecting the amplitude of the downstream DSL signal being performed by a digital signal processor (a programmable gain amplifier and a digital transceiver function 10 is preferably implement as a high-performance digital signal processor (DSP), col. 5, line 60 to col. 6, line 3)). Therefore, the function of programmable gain amplifier is similar to the function of the loss circuit; claim 13 is therefore rejected under a similar rationale.

Claims 19-22 are similar to claims 1-2, 6, 14. Therefore, claims 19-22 are rejected under a similar rationale.

Allowable Subject Matter

3. Claims 11 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ko et al (U.S. Pat. 6,212,227) disclose a constane envelope modulation for splitterless DSL transmission.

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Vitenberg et al (U.S. Pat. 6,351,509) disclose a method and an apparatus for reducing power consumption of digital subscriber line modems.


Dehghan (U.S. Pat. 6,556,635) discloses a communication receiver having adaptive dynamic range.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KHAI TRAN whose telephone number is (703)305-1876. The examiner can normally be reached on 7:00AM - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammed Ghayour can be reached on (703)306-3034. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KT
March 11, 2004


KHAI TRAN
PATENT EXAMINER